

DE LA SALLE UNIVERSITY

THE RELATIVE EFFECTIVENESS  
OF TWO METHODS  
OF TEACHING PROBLEM SOLVING

A Thesis

Presented to

the Faculty of the Graduate School

De La Salle University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Teaching

(Mathematics)

by

Divina Lourdes A. Bonus

October 1990

THE DLSU-EAC LIBRARY



# DE LA SALLE UNIVERSITY

## TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS .....	iii
LIST OF EXHIBITS .....	vi
Chapter	
1 INTRODUCTION .....	1-1
Statement of the Problem .....	1-3
Hypothesis .....	1-5
Significance of the Study .....	1-5
Scope and Limitations .....	1-7
Definitions of Terms .....	1-8
Theoretical Framework .....	1-13
2 REVIEW OF RELATED LITERATURE .....	2-1
Bilingualism in the Philippines .....	2-1
Bilingualism in Other Countries .....	2-8
3 METHODOLOGY .....	3-1
The Research Design .....	3-1
Pre-Experimental Phase .....	3-2
Preparation of Instructional Materials .....	3-2
Preparation and Validation of Achievement Test .....	3-2
Description of the Subjects .....	3-5
Description of the Instruments in the Study .....	3-7
Experimental Procedure .....	3-10



# DE LA SALLE UNIVERSITY

v

Chapter	PAGE
The Dependent Variable .....	3-13
Data Analysis Tools .....	3-14
Statistical Tests .....	3-14
Stratified Analysis .....	3-18
4 PRESENTATION AND INTERPRETATION OF DATA.....	4-1
Distribution of Data .....	4-1
T-test .....	4-4
Simple correlations .....	4-6
Analysis of Covariance through Stepwise ....	4-7
Stratified Analysis .....	4-10
Evaluations Based on Sub-categories .....	4-14
Evaluations Based on Daily Usage .....	4-17
Evaluations Based on Language Preference ..	4-19
Over-all Evaluation of the Stratified Analysis .....	4-21
5 SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS .....	5-1
Statement of the Problem .....	5-1
Pre-Experimental Procedure .....	5-2
Investigative Procedure .....	5-3
Findings of the Study .....	5-4
Conclusions .....	5-8
Recommendations .....	5-9



# DE LA SALLE UNIVERSITY

vi

## TABLE OF EXHIBITS

3.1	The Research Design .....	3-1
3.2.2-A	Item Specification of Achievement Test (First Draft) .....	3-3
3.3.2-B	Item Specification of Achievement Test (Final Draft) .....	3-4
3.3.3-A	Means, Standard Deviations, and T-computed of NCEE Scores of the Subject Classes in St. Scholastica's College and College of the Holy Spirit .....	3-6
3.2.3-B	Frequency of Subjects from the Different Subject Classes .....	3-7
3.2.4	Instruments Used to Measure the Variables in the Study .....	3-8
3.3	Activities of the Experimental and Control Groups .....	3-12
3.4-A	Computation of Performance Improvement .....	3-13
3.4-B	Accuracy Test for Alternative Formulae Measuring Performance Improvement .....	3-14
4.1-A	Pertinent Statistics for the Experimental Group of Subjects .....	4-2
4.1-B	Pertinent Statistics for the Control Group of Subjects .....	4-3
4.2-A	T-tests Between the Means of the Experimental and Control Groups .....	4-4
4.2-B	Summary of Statistics of the Combined and Control Groups .....	4-5
4.3-A	Correlation of Performance Improvement with Independent Variables .....	4-6
4.3-B	Correlation of Performance Improvement with Independent Variables Based on Combined Experimental and Control Group Data .....	4-7



# DE LA SALLE UNIVERSITY

vii

4.4-A	Multiple Correlation and Probability of Increase of GSA and Group Code of Subjects .....	4-8
4.4-B	Regression Equation (ANCOVA) .....	4-8
4.4-C	Unadjusted and Adjusted Means of the Experimental and Control Groups .....	4-9
4.5-A	Stratification by Performance Group .....	4-10
4.5-B	Stratification by Function Group and Daily Language Used .....	4-11
4.5-C	Stratification by Function Group and Preference of Instructional Medium .....	4-12
4.5-D	SSHA Rating of Experimental and Control Groups .....	4-13
4.5-E	OLSAT Rating of Experimental and Control Groups .....	4-14
4.5.1-A	Over-all Performance of the Experimental and Control Groups (OLSAT-SSHA Interface)...	4-15
4.5.1-B	Over-all Performance of the Experimental and Control Groups.....	4-16
4.5.2-A	Student Group Speaking English and Filipino Only .....	4-18
4.5.2-B	Student Group Speaking English, Filipino and Other Local Dialects .....	4-19
4.5.3-A	Students Who Preferred English and Filipino as the Medium of Instruction .....	4-20
4.5.3-B	Students Who Preferred Only English as the Medium of Instruction .....	4-21
BIBLIOGRAPHY .....		ix
APPENDICES		
Sample Lesson Used in the Experimental and the Control Groups .....		A-1



# DE LA SALLE UNIVERSITY

viii

Pretest and Posttests Administered to the Experimental and Control Groups .....	A-98
Questionnaire Administered to Control Group .....	A-101
Questionnaire Administered to Experimental Group ..	A-103

